

Translation

PATENT COOPERATION TREATY

PCT/FR2003/001653



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 62819	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/FR2003/001653	International filing date (day/month/year) 02 juin 2003 (02.06.2003)	Priority date (day/month/year) 04 juin 2002 (04.06.2002)
International Patent Classification (IPC) or national classification and IPC G02B 6/34, 6/42, H04J 14/02, G02B 5/20		
Applicant ATMEL GRENOBLE S.A.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 04 décembre 2003 (04.12.2003)	Date of completion of this report 27 September 2004 (27.09.2004)
Name and mailing address of the IPBA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR2003/001653

I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☒ the description:
 pages _____ 1-10 _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☒ the claims:
 pages _____, as originally filed
 pages _____, as amended (together with any statement under Article 19
 pages _____, filed with the demand
 pages _____ 1-10 _____, filed with the letter of _____ 24 June 2004 (24.06.2004)
- ☒ the drawings:
 pages _____ 1/4-4/4 _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☒ the claims, Nos. _____ 11 _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-10	YES
	Claims		NO
Inventive step (IS)	Claims	1-10	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

2. Citations and explanations

1. Reference is made to the following document:

D1: JP9211383 A

2.1 The application fails to comply with the requirements of PCT Article 6, since claim 1 is unclear. The expression "common collimating means..." appears in lines 10 and 11 of claim 1. However, in the embodiment of the invention illustrated in figure 1, said means (12) collimate the visible radiation (3), *focus* the first portion (4) of the radiation, collimate the "segment" (7) and *focus* the fourth portion (11). This inconsistency between claim 1 and the figures results in a lack of clarity (PCT Article 6). For the purposes of assessing novelty and inventive step, the phrase "common collimating means..." is interpreted as "common collimating and/or focusing means..."

2.2 Claim 1, when interpreted as indicated above, is considered to involve an inventive step (PCT Article 33(3)), for the following reasons:

2.3 D1 describes an optical filtering component including a tuneable, wavelength-selective filter

(see figures 2 to 5) capable of transmitting light within a narrow optical spectral band centred about a given wavelength and reflecting light having a wavelength outside said band, and an input guide (103) directing visible radiation towards the filter; characterised in that the input guide (103) directs the radiation towards the filter so that it passes therethrough a first time, and in that the component comprises means (104, 105, 106, 107) for returning a first portion of the radiation reflected by the filter during the first passage so that it passes therethrough a second time (see figure 1).

- 2.4 Consequently, the subject matter of claim 1 differs from D1 in that it comprises collimating and/or focusing means common to the input guide (2), the returning means (6) and the second output guide (10).
- 2.5 The problem that the present invention is intended to solve can be considered to be that of reducing the size and the number of elements required.
- 2.6 The solution proposed in the characterising part is not found in the available prior art. Furthermore, it would not be possible to replace the lenses (102, 104, 106, 108) of D1 with collimating and/or focussing means, since the lenses (102, 104, 106, 108) are arranged either side of the filter.
- 2.7 The combination of features of claim 1 is not considered obvious in the light of the prior art and, consequently, claim 1 meets the requirements of PCT Article 33(3).

3. Claims 2 to 10 are dependent on claim 1 and thus also comply, as such, with the requirements of novelty and inventive step of the PCT.
4. It is noted that, for reasons of uniformity, the phrase "in that it comprises a lens (12)" in claim 3 should have been replaced by an expression such as "in that said common collimating and/or focusing means consist of a lens (12)".

CLAIMS

1. An optical filtering component including a tunable and wavelength selective filter (1) capable of transmitting the light in a narrow optical spectral band centered around a given wavelength and capable of reflecting the light whose wavelength is outside said band, an input guide (2) conducting light radiation (3) to the filter (1), characterized in that the input guide (2) conducts the radiation (3) to the filter (1) in order to perform a first pass through it, in that the component includes means (6) for returning a first part (4) of the radiation (3) reflected by the filter (1) during the first pass in order to perform a second pass through it, and in that it includes collimation means common to the input guide (2), to the return means (6) and to the second output guide (10).
2. The optical filtering component as claimed in claim 1, characterized in that it includes a second output guide (10) conducting a fourth part (11) of the radiation reflected by the filter (1) during the second pass.
3. The optical filtering component as claimed in one of the preceding claims, characterized in that it includes a lens (12) arranged between, on the one hand, the filter (1) and, on the other hand, the input guide (2), the return means (6) and the second output guide (10).
4. The optical filtering component as claimed in claim 3, characterized in that the lens (12) is a graded index lens.
5. The optical filtering component as claimed in claim 4, characterized in that the lens (12) is such that its object focal plane coincides with an input face of the lens (12).
6. The optical filtering component as claimed in one of the preceding claims, characterized in that the

return means (6) direct the first part (4) of the radiation (3) to the filter (1), with the same incidence as the input guide (2).

5 7. The optical filtering component as claimed in one of the preceding claims, characterized in that it includes means for tuning the given wavelength.

8. The optical filtering component as claimed in one of the preceding claims, characterized in that it includes means (20) for inserting replacement radiation
10 whose length is substantially centered on the given wavelength.

9. The optical filtering component as claimed in one of the preceding claims, characterized in that the return means (6) are produced by means for glass plate
15 photolithography and ion exchange.

10. The optical filtering component as claimed in one of the preceding claims, characterized in that it includes means for amplifying the radiation reflected by the filter (1).